WHAT IS CLAIMED IS:

1. An electron optics assembly for a multi-column electron optical system comprising:

a multiplicity of separate electron sources, such that there is a corresponding electron source for each column;

a single accelerator structure situated below said electron sources;

a multiplicity of separate scanning deflectors situated below said accelerator structure, such that there is a corresponding scanning deflector for each column; and

a multiplicity of focus lenses situated below said deflectors, such that there is a corresponding focus lens for each column.

2. An electron optics assembly as in claim 1, wherein each of said electron sources comprises a multiplicity of independently operable field emission cathodes.

3. An electron optics assembly as in claim 1, wherein said accelerator structure is comprised of a set of accelerator plates, a multiplicity of accelerator apertures extending fully through said set of accelerator plates, such that there is a corresponding accelerator aperture for each column.

4. An electron optics assembly as in claim 1, wherein said accelerator structure is comprised of a single piece of resistive ceramic material, a multiplicity

of accelerator apertures extending fully through said single piece of resistive ceramic material, such that there is a corresponding accelerator aperture for each column.

5. An electron optics assembly as in claim 1, further comprising a multiplicity of alignment deflectors, for precisely steering the electron beams down the centers of corresponding columns, situated between said electron sources and said accelerator structure, such that there is a corresponding alignment deflector for each column.

6. An electron optics assembly as in claim 1, wherein said multiplicity of focus lenses are formed in a single lens plate.